

LISTING OF THE CLAIMS

1. (Previously Presented) A surface emitting laser for performing surface emission of laser light, comprising:

a semiconductor layer laminated body including an active layer, a semiconductor substrate and a plurality of semiconductor layers laminated on the semiconductor substrate; and a pair of electrodes for injecting carriers into the active layer;

wherein one of said electrodes comprises a single electrode layer in contact with said semiconductor layer laminated body defining a contact area, the contact area having a center portion and a peripheral portion at least partially surrounding the center portion, the peripheral portion having an outer periphery and an area density that continuously decreases from the center portion to the outer periphery, such that said one electrode is configured to inject current into the active layer, such that the current densities for the center portion and the peripheral portion are different.

2. (Cancelled)

3. (Previously Presented) A surface emitting laser as defined in Claim 1 wherein plural fine holes are formed in the electrode layer, such that the occupation density of the fine holes differs between the center portion and the peripheral portion.

4. (Previously Presented) A surface emitting laser as defined in Claim 1 wherein resistance values of the electrode layer differ between the center portion and the peripheral portion.

5. (Previously Presented) A surface emitting laser for performing surface emission of laser light, comprising:

a semiconductor layer laminated body including an active layer, a semiconductor substrate and a plurality of semiconductor layers laminated on the semiconductor substrate;

a pair of electrodes for injecting carriers into the active layer, one of said electrodes comprising a single electrode layer having a center portion and a peripheral portion, and said one

electrode being configured to inject current into the active layer, such that current densities for the center portion and for the peripheral portion are different;

a resistive layer disposed between the semiconductor layer laminated body and the electrode layer, the resistive layer including a first portion adjacent the center portion and a second portion adjacent the peripheral portion, a resistance value of the first portion being different from a resistance value of the second portion; and

a plurality of fine holes disposed in the resistive layer, such that an occupation density of the fine holes disposed in the center portion is different than an occupation density of fine holes disposed in the peripheral portion.

6. (Previously Presented) A surface emitting laser as defined in Claim 1 further including:

a resonator for amplifying light generated in the active layer to generate laser oscillation, said resonator comprising a reflection layer included in the semiconductor layer laminated body, and an external mirror disposed separately from the semiconductor layer laminated body so as to be opposed to the reflection layer.

7. (Previously Presented) A surface emitting laser as defined in Claim 6 wherein said external mirror is a partial transmission mirror, both surfaces of which are concave in shape.

8. (Previously Presented) A surface emitting laser as defined in Claim 1 wherein: said semiconductor layer laminated body includes an over-saturation absorber for absorbing over-saturated carriers in the active layer, said absorber being disposed in the vicinity of the active layer.

9. (Original) A surface emitting laser as defined in Claim 1 wherein the oscillation wavelength of the surface-emitted laser light is within a range of 430～455nm.

10. (Original) A surface emitting laser as defined in Claim 1 wherein the oscillation wavelength of the surface-emitted laser light is within a range of 630～650nm.

11. (Original) A surface emitting laser as defined in Claim 1 wherein the oscillation wavelength of the surface-emitted laser light is within a range of 510~550nm.

12. (Previously Presented) A surface emitting laser as defined in Claim 6 further including:

a non-linear optical member for converting the wavelength of laser light, said optical member being disposed between the external mirror and the active layer.

13. (Previously Presented) A surface emitting laser as defined in Claim 1 wherein:
said semiconductor substrate has a rear surface and a concave part, the concave part being an etched portion of the substrate at the rear surface, up to a position near the surface of the active layer.

14. (Original) A semiconductor laser device comprising a semiconductor laser for emitting laser light, and a wavelength conversion element for converting the wavelength of the laser light emitted from the semiconductor laser,
said semiconductor laser being the surface emitting laser defined in Claim 1.

15. (Original) A laser module obtained by integrating plural semiconductor lasers in a single package,

each of the plural semiconductor lasers being the surface emitting laser defined in Claim 1.

16. (Original) A laser module as defined in Claim 15 wherein said plural semiconductor lasers are arranged so that each semiconductor laser is positioned at an apex of a regular polygon the center of which matches the center of the package.

17. (Original) A laser projector comprising a semiconductor laser for emitting laser light, and a projection optical system for projecting the laser light emitted from the semiconductor laser,

said semiconductor laser being the surface emitting laser defined in Claim 1.

18. (Original) A laser projector as defined in Claim 17 wherein said surface emitting laser emits laser light in which a vertical mode spectrum is in a multimode.

19. (Original) A laser projector as defined in Claim 17 wherein said surface emitting laser emits laser light in which the substantial width of a vertical mode spectrum is 1nm or more.

20. - 25. (Cancelled)